

## Claims

1. An infrared thermometer (1) for determining a temperature of a first body site of a patient, preferably selected from the group of rectal, oral and axillar temperatures, by a measurement at a second body site, preferably the forehead centre surface skin or other body site surface skin, said thermometer having
  - an infrared sensor (11) for detection of a surface skin temperature (F) at said second body site and for producing surface temperature signal data;
  - sensor means (11; 34) for measuring a reference temperature, particularly the ambient temperature or the temperature of a cold junction of said infrared sensor, and for producing reference operating temperature signal data (A);
  - a calculating unit (39) and
  - a memory (41) associated with the calculating unit; said memory (41) having reference data, preferably derived from clinical tests, stored therein, whereby said calculating unit is adapted to calculate an estimated temperature (F+O) of said first body site on the basis of said surface temperature data (F), said concurrently detected reference operating temperature data (A) and said reference data.
2. A thermometer according to claim 1, wherein said temperature sensor (34) is arranged within said infrared sensor (11).
3. A thermometer according to one of the claims 1 or 2, wherein said reference data are stored in a non-volatile memory, especially in a ROM or EEPROM.

4. A thermometer according to one of the claims 1 to 3, wherein the calculating unit is adapted to determine the sum of said body surface skin temperature data (F) and a physiological site offset value (O), determined on the basis of said detected reference operating temperature data (A), the concurrently measured body surface skin temperature data (F) and said reference data wherein (O) is equivalent to the temperature difference between the first body site and the corresponding second body site.
5. A thermometer according to one of the claims 1 to 4, wherein the temperature of the first body site is calculated on the basis of linear interpolation.
6. A thermometer according to one of the claims 1 to 5, wherein lookup tables are stored in said memory (41), said lookup tables having a first group of data relating to measured body surface skin temperature values at a second body site made during prior clinical tests, a second group of data relating to sensor operating cold junction or ambient temperature values concurrently measured during said prior clinical tests and a third group of data relating to simultaneous temperature values measured at the first body site during said prior clinical tests.
7. A thermometer according to one of the claims 1 to 6, wherein the thermometer has at least two operating modes, a measuring mode and a calibration mode, and wherein the thermometer has means for switching between said modes.
8. A thermometer according to claim 1 to 7, wherein the thermometer has at least two different measuring modes, where the temperature at different first body sites are calculated

on the basis of different sets of lookup tables stored in said memory (41) for different measuring modes.

9. A method for determining a temperature of a first body site of a patient with an infrared thermometer (1), the method comprising the steps of

- measuring a body surface skin temperature (F) at a second body site and producing body surface skin temperature signal data;
- measuring a temperature of a reference site, in particular of the infrared sensor cold junction or of the ambient temperature (A) and producing reference operating temperature signal data,
- accessing a lookup table with prior clinical test data stored in a memory (41) in the infrared thermometer (1) based on the measured temperature data (F) and (A),
- calculating an estimated temperature (F+O) of said first body site on the basis of said body surface skin temperature signal data(F), and said reference temperature signal data (A) and said reference data accessed in said lookup table.